16. (amended) A system according to claim 15,

characterized in that

said system is a fixed part (1) of said radio network system.

17. (amended) A system according to claim 9,

characterized in that

said signaling information provided by said means for inserting and evaluation signaling information (12;22) into and from individual frames indicate coding modes used by the means for coding and decoding (10,11;20,21), and said signaling information provided by said means for partitioning signaling information (12;22) and inserting and evaluating said partitioned information into and from different frames indicate a quality measurement for transmission.

18. (amended) A system according to claim 17,

characterized in that

said system is a mobile part (2) of said radio network system.

19. (amended) A system according to claim 18,

characterized in that

said quality measurement for transmission is evaluated by said mobile part (2) of said radio network system, based on frames received from said fixed part of said radio network system.

Remarks

In this reply, claims 2-8 and 10-18 are amended to correct certain typographical errors noted by the Examiner. Certain paragraphs of the specification and abstract are also amended to correct typographical errors in the specification and abstract as filed. The Examiner is thanked for observing these errors and giving applicant the opportunity to correct them.

As to the Examiner's argument in paragraph 13 that claim 1 is clearly anticipated by Alanara, the applicant believes that US 6,286,122 does not disclose a method as claimed in claim 1 of the present application. The applicant believes that the following method steps are not taught by Alanara:

inserting signaling information related to individual frames into said individual frames; and

partitioning signaling information and inserting said partitioned signaling information into different frames.

The Examiner cites column 4, lines 18-24 as disclosing the aspect of inserting signaling information related to individual frames into said individual frames. No suggestion is given in this paragraph that the information (the "signaling word") to be interleaved with the data word is **related to** the data word, or, more accurately, the **frame** in which the data word is being transmitted. It is stated that "in one embodiment the signaling word conveys radio channel measurement information" (lines 25-26). It is nowhere taught that the radio channel measurement information must be related to the frame.

The Examiner cites column 9, lines 54-56 as disclosing the partitioning step of the present claim 1. This paragraph states that sixteen usable bits resulting from a particular rate of coding can be used to carry "any other control information". It is not clear to the applicant where in this paragraph the Examiner believes it is taught that signaling information is partitioned.

Furthermore, column 10, lines 52-54 is cited as disclosing the final step of claim 1: inserting said partitioned signaling information into different frames. The applicant believes that this sentence does not teach the inserting step as defined in claim 1 for the following reasons.

First, it is stated that a channel quality measurement can be sent "over at least two slots". It is not suggested that partitioned signaling information should be inserted into **different frames**. As is noted by the Examiner at page 9, third paragraph of the office action, "a 40 millisecond frame consists of six timeslots". A disclosure that information is sent over at least two slots cannot be said to be a disclosure that information should be sent in different frames.

Secondly, claim 1 recites, "inserting **said** partitioned signaling information into different frames", i.e. that the partitioned information in question is the same information

as was partitioned in the previous step recited in the claim. The Examiner cites different portions of Alanara as disclosing the partitioning step and the inserting step. The signaling word of column 4, lines 18-24 is not the same as the channel quality measurement of column 10, lines 52-54 and therefore it is certainly not disclosed to insert said partitioned information as recited in claim 1.

Since it is believed by the applicant that claim 1 is novel and inventive over Alanara, it is further believed that the claims dependent on claim 1 are likewise novel and inventive, and that the system claim, claim 9, corresponding to the method of claim 1, and also the claims dependent on claim 9, are novel and inventive.

In view of the foregoing arguments and amendments, applicants' submit that their claims are in condition for allowance. Favorable action is respectfully requested.

Respectfully submitted,

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By _____
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MARKED-UP VERSION OF AMENDMENT

IN THE ABSTRACT

Replace paragraph beginning on page 14, line 5.

Methods for signaling information in transmission systems do have certain disadvantages, like the use of an additional channel for signaling or the use of a [big] large number of bits for signaling.

IN THE SPECIFICATION

Replace paragraph beginning on page 2, line 3.

The known methods for signaling information in a radio network do have certain disadvantages, like the use of an additional channel, e.g. the SACCH channel. It is [an other] another disadvantage, that if the traffic channel itself is used, at least half of the bits of each TCH frame are used for signaling and therefore are no longer available for the transmission of user data. It is a further disadvantage that signaling information being transmitted within one frame is susceptible to errors being caused by bad transmission conditions.

Replace paragraph beginning on page 3, line 3.

It is advantage of the present invention, that if facilitates highly protected and highly reliable signaling requiring only a minimum of bits. It is [an other] another advantage of the present invention, that it easily allows the detection of the signaling bits as the synchronization already available from the transmission system and the frame structure of the transmission system is used for the signaling information.

Replace paragraph beginning on page 14, line 13.

Fig. 1 shows data structure for signaling information according to the present invention, especially information on the AMR coding mode called coding mode in the following. The structure shown represents the signaling from the fixed part of the radio network to the mobile part, i.e. data are transmitted from the fixed part to the mobile part. User date, i.e. speech, is being source coded in a speech coding step 101 using one mode of available modes for speech coding according to the selected coding mode.

By example, six different coding modes can be used. In this case three bits are necessary for coding the six different coding modes. When the transmission is started the pre-selected coding mode can be the coding mode offering the lowest bit rate for speech. The coding mode can be changed if necessary as will be explained later. According to the selected coding mode the speech coded data from step 101 is channel coded together with at least one additional bit derived [form] from a multi-frame signaling step 102 in a channel coding step 104, forming speech and multi-frame signaling bits 106. The additional bit from step 102 is a part of the three bit information used for coding additional signaling information. In the present example it represents the six different coding modes available or measurement information. In this example it takes three frames within a multi-frame of six frames, as e.g. defined and used according to the GSM standard, to transmit the coding mode information as within each frame only one of three bits is transmitted, thus providing additional protection for the transmitted coding mode information. Due to the fact that the one bit used per frame is in addition protected by the channel coding step 104, total protection is further increased.

Replace paragraph beginning on page 5, line 20.

If, [depart for] instead of the above described transmission direction from the fixed part of the radio network to the mobile part (downlink), the transmission direction is reversed to the direction from the mobile part to the fixed part of the network (uplink), the actual mode bits 105 also contain the coding mode used for the respective frame as coded in the mobile part, but the multi-frame signaling bits 102 transmitted in three consecutive frames contain a quality measurement of the downlink, as measured by the mobile part at reception thereof. For the measured quality of the downlink eight different levels can be assigned as three bits are used for multi-frame signaling.

Replace paragraph beginning on page 6, line 1.

Looking now to Fig. 2, the data structure for signaling as explained above will be explained in greater detail. Fig. 2 shows the signaling for nine consecutive data frames 0 to 8. In the example shown it is assumed that the fixed part of the network and the mobile part use the same coding mode for the transmission of data in downlink and uplink, this is also referred to a symmetrical operation. It should be noted that it is also

possible that the fixed part of the network uses a coding mode for the downlink different from the coding mode used by the mobile part for uplink. In this case an actual mode signaling codeword for the downlink is different in general compared to an actual mode signaling codeword for the uplink. The table of Fig. 2 has in its first [gap] column the frame number of the transmitted data frame; in its second [gap] column the three bit actual mode codeword used for signaling of the coding mode for the downlink; in its third [gap] column the multi-frame signaling bit used for characterizing the coding mode command for the uplink sent in the downlink; in its fourth [gap] column the three bit actual mode codeword used for signaling of the coding mode for the uplink; in its fifth [gap] column the multi-frame signaling bit of the uplink used for characterizing the transmission quality of the downlink as received and measured by the mobile part; and in its sixth [gap] column the action regarding change of used coding mode.

Replace paragraph beginning on page 7, line 21.

Fig. 3 is a schematic diagram of a system for signaling information according to this invention. A fixed part of the network 1 and a mobile part 2 are depicted. Both parts have a source coder/decoder 10, 20, e.g. for speech, a first channel coder/decoder 11, 21, a coding mode means 12, 22, a second channel coder/decoder 13, 23, a formatting and interleaving/de-interleaving means 14, 24, a transceiver 15, 25, and an antenna 16, 26. Several other elements are used in the fixed part of the network 1 and the mobile part, e.g. an equalizer is used within the transceivers 15 and 25, for the sake of an easier understanding of the present invention [this] these elements are not shown as they are not relevant for this invention. For greater detail of the radio network reference is made to the mentioned state of the art.

IN THE CLAIMS

2. (amended) A method according to claim 1,

characterized in[,] that

said inserted signaling information and said inserted partitioned signaling information [is] are synchronized by using the given synchronization of the frame based transmission system.

3. (amended) A method according to claim 1 or 2,

characterized in[,] that

said signaling information and said partitioned signaling information indicate a coding mode used for coding and decoding data in the transmission system.

4. (amended) A method according to claim 1,

characterized in[,] that

said inserted signaling information related to individual frames indicates a coding mode used for coding and decoding data in the transmission system, said partitioned signaling information inserted into different frames of the uplink is a quality [criterion] measurement for the transmission, and

said partitioned signaling information inserted into different frames of the downlink [indicated] indicates a coding mode used for coding and decoding data in the transmission system.

5. (amended) A method according to claim 1,

characterized in[,] that

said inserted signaling information related to individual frames is channel coded separately.

6. (amended) A method according to claim 1,

characterized in[,] that

said partitioned signaling information inserted into different frames is channel coded together with data contained in said different frames.

7. (amended) A method according to claim 1,

characterized in[,] that

the transmission system is a radio network system.

8. (amended) A method according to claim 7,

characterized in[,] that

said radio network system is a GSM system.

10. (amended) A system according to claim 9,

characterized in[,] that

means for synchronizing (10,11,14;20,21,24) are used to synchronize said inserted signaling information and said inserted partitioned signaling information according to the given synchronization of the frame based transmission system.

11. (amended) A system according to claim 9 to 10,

characterized in[,] that

means for channel coding and decoding (13;23) are used to channel code and decode the signaling information provided by said means [far] <u>for</u> inserting and evaluating signaling information (12;22) into and from individual frames.

12. (amended) A system according to claim 9,

characterized in[,] that

the means for <u>channel</u> coding (11;21) are used to channel code and decode the signaling information provided by said means for partitioning signaling information (12;22) and inserting and evaluating said partitioned information into and from different frames.

13. (amended) A system according to claim 9,

characterized in[,] that

the transmission system is a radio network system.

14. (amended) A system according to claim 13,

characterized in[,] that

said radio network system is a GSM system.

15. (amended) A system according to claim 9,

characterized in[,] that

said signaling information provided by said means for inserting and evaluating signaling information (12;22) into and from individual frames and said signaling information provided by said means for partitioning signaling information (12;22) and inserting and evaluating said partitioned information into and from different frames indicate coding modes used by the means for coding and decoding (10, 11; 20, 21).

16. (amended) A system according to claim 15,

characterized in[,] that

said system is a fixed part (1) of said radio network system.

17. (amended) A system according to claim 9,

characterized in[,] that

said signaling information provided by said means for inserting and evaluation signaling information (12;22) into and from individual frames indicate coding modes used by the means for coding and decoding (10,11;20,21), and said signaling information provided by said means for partitioning signaling information (12;22) and inserting and evaluating said partitioned information into and from different frames indicate a quality [criterion] measurement for transmission.

18. (amended) A system according to claim 17,

characterized in[,] that

said system is a mobile part (2) of said radio network system.

19. (amended) A system according to claim 18,

characterized in[,] that

said quality [criterion] measurement for transmission is evaluated by said mobile part (2) of said radio network system, based on frames received from said fixed part of said radio network system.